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ABSTRACT

This ERIC Information Analysis product is intended to provide current, succinct, and accurate information regarding the use of television, especially telecourses, in 2-year postsecondary institutions. To provide a comprehensive overview of the subject, the monograph is divided into three major sections: (1) current developments in telecommunications in 2-year postsecondary institutions in the United States: (2) what the research says about the use of telecommunications with adult learners: and (3) how to get started in using the new media to provide cost-effective instruction in community and junior colleges. The format is in questions and answers to aid individuals who are asking similar questions and cannot take time to read an entire publication to find help on one specific matter. References are provided for each section as well as a list of additional readings. (Author/CHC)

TELEVISION IN COMMUNITY AND JUNIOR COLLEGES: AN OVERVIEW AND GUIDELINES

by

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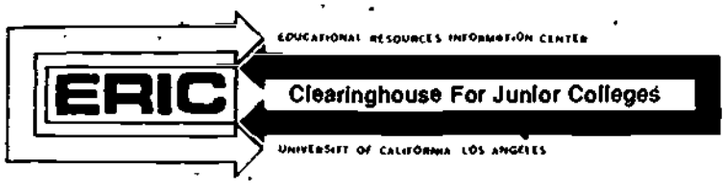

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ERIC Clearinghouse on Information Resources
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PREFACE

The rapid growth in telecommunications in the junior and community college sector of higher education in North America seemed to call for an authoritative analysis of what is happening, what research supports these efforts, and how institutions might begin to utilize the newer media of communication to provide cost-effective instruction.

The need was first articulated by Dr. James Zigerell, formerly Executive Dean of Chicago's TV College and currently a consultant to the Instructional Telecommunications Consortia (formerly the Task Force on Uses of Mass Media in Learning) of the American Association for Community and Junior Colleges. The ERIC Clearinghouse on Information Resources acknowledged the need and sought the assistance of the ERIC Clearinghouse on Community and Junior Colleges.

The purpose of this Information Analysis Product is to provide current, succinct, and accurate information regarding the use of television, especially telecourses, in two year postsecondary institutions. To provide a comprehensive overview of the subject, the monograph is divided into three major sections: (1) current developments in telecommunications in two-year postsecondary institutions in the U.S.; (2) what the research says about the use of telecommunications with adult learners; and (3) how to get started in using the new media in community and junior colleges.

A publication which hoped to fulfill its purpose with a comprehensive coverage of the subject needed a writing team composed of specialists who have been intimately involved with the movement. For an overview of activities during the past 20 years, we turned to Dr. Zigerell, who was not only the Dean of TV College, but who is considered to be the "Dean" of telecommunications in the postsecondary fraternity. For an overview of research, we selected Dr. James S. O'Rourke, Assistant Professor of English at the U.S. Air Force Academy, who had just finished a major study of telecourses with adult learners. And we asked Ted Pohrte, of the Dallas County Community College District to describe the experiences of community college systems which are committed to the use of telecourses.

The format is in questions and answers. We felt that this type of organization would aid individuals who were asking similar questions and would assist individuals who are seeking answers and cannot take time to read an entire publication to find help on one specific matter.

We appreciate the cooperative efforts which made this publication possible, but special thanks should go to Dr. Zigerell, the initiator and general editor and to Barbara Minor, ERIC/IR's editor, who coordinated the project. We are also pleased to note the contribution of the AACJC Task Force on Uses of Mass Media in Learning, which has helped to add useful information to the literature of this ever-growing movement.

Donald P. Ely
Director, ERIC/IR
Syracuse, New York
December 1980

CURRENT DEVELOPMENTS IN TELECOMMUNICATIONS IN TWO-YEAR POSTSECONDARY INSTITUTIONS IN THE U.S.

James J. Zigerell

How many people enroll in college-credit TV courses and how many colleges offer them?

The first thing to be said is there is currently no reliable source for such figures and no central agency that tabulates TV course enrollments or collects data on completion rates in the courses and the like. However, the major users of these courses (who are often producers as well)--large community colleges like Dallas, Coast, Northern Virginia, and consortia of community colleges in California and on the East Coast--do keep accurate enrollment data. There are also data on how many texts prescribed for use with TV courses are sold, although it must be kept in mind that not all credit students buy texts and some viewers who are not enrolled do buy them. Distributors of courses keep records as to how many colleges are continuing users, and how many are casual or one-time users.[1]

We do know that average enrollments in TV courses are fairly slim—about 25 students per off campus course. Large enrollments tend to be clustered in relatively few institutions, with two-year colleges like Dallas and consortia of two-year colleges like the Southern California Consortium numbering students in the thousands every year. On the basis of the results of investigations into the relations between two-year colleges and public broadcasting stations by the Station-College Executive Project in Adult Learning (SCEPAL)[2] and the AACJC/Adult Learning and Public Broadcasting Project[3] we can conclude that some 200,000 students enroll nationwide in TV courses every year, this figure not including enrollments in closed-circuit TV courses on campuses (Munshi, 1980; Kressel, 1980).

A final cautionary word and a note of complaint: enrollment figures reported by the projects cited above can be misleading. The AACJC study, for example, reports that about 74 percent of the nation's community colleges make use of television, with above half of that percentage employing it for off-campus instruction. Another study conducted by the Corporation for Public Broadcasting (CPB) and the National Center for Education Statistics reports that upwards of 1,800 of the nation's almost 3,000 colleges and universities offered about 2,300 TV courses in 1979, with about a half-million enrollments (Higher Education Utilization . . . , 1979). For administrators interested in the uses of TV courses as an

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[1]For a detailed discussion of TV course enrollments, see Kiki Skagen Munshi, Telecourses: Reflections '80 (Washington, DC: Corporation for Public Broadcasting, 1980). This useful compendium of information about ITV in higher education resulted from the Station-College Executive Project in Adult Learning (SCEPAL).

[2]A cooperative project conducted by Coastline Community College, KOCE-TV, KPBS-TV, The Nebraska Educational Television Network, The University of California-San Diego, and the University of Mid-America for the Corporation for Public Broadcasting (CPB) in 1978.

[3]Conducted by the American Association of Community and Junior Colleges for the Fund for the Improvement of Postsecondary Education (DHEW) in 1979.

alternative to traditional instruction for adult learners who can study—if they study at all--only "at a distance," these figures are of little help. The first study does not tell us enough about how community colleges use television, and the enrollment figures in the second include students enrolled in on-campus closed-circuit television courses.

Despite the admitted imprecisions in counting enrollments, the fact remains that postsecondary instructional television (ITV) is a growing enterprise. Colleges and universities are seeing multi-channeled cable television systems as inexpensive ways of delivering general education credit courses, informal adult education programs, and continuing professional education courses to audiences too narrow to be attractive to public and commercial broadcasters. Several recently inaugurated national ITV projects also indicate that the universities are beginning to recognize television as an important tool in reaching and recruiting new kinds of students at a time when campus enrollment projections are bleak. The National University Consortium (NUC), a Carnegie-funded association of seven colleges under the leadership of the University of Maryland's University College and the Maryland Center for Public Broadcasting, is bringing British Open University (BOU) courses to American students, with the accompanying video programs beamed to participating public television stations via satellite. About 300 students enrolled in the first term of NUC operations. (A single BOU course, it should be noted, translates into nine U.S. credit hours.) Recently, too, the Walter Annenberg Foundation announced its interest in funding, through CPB, a 15-year project during which college-level courses would be designed for broadcast on public television stations--certainly eloquent testimony to the growing interest in ITV in the higher education community.*

Finally, there is the Wayne State "To Educate the People" Consortium, which uses television, weekly conferences, and periodic on-campus weekends to enable an adult employed full time to earn a general studies bachelor's degree in as few as four years (Feinstein and Angelo, 1977). With grants from FIPSE and NEH, a group of colleges and universities, including several community colleges, has adopted the video programs produced at Wayne and adapted the curriculum in general to local needs (Lynch, 1980).

Before we go any further, will you tell us what a TV course is?

The design and production of TV courses have been greatly refined over the past ten years, so much so that programs of some of the series produced by community college producers can hold their own alongside general-audience cultural programs presented on PBS. Many designers and producers nowadays prefer the term "telecourse" to describe what is essentially a learning system for the student, comprised of video programs (usually 30 half-hour programs), study guides and exercise materials, textbooks, and a variety of other study aids that may include face-to-face contacts with tutors or instructors. Courses are designed

*Since this report was written, the Annenberg Foundation has announced the inauguration of this 15-year project which will make some 150 million dollars available for telecommunication materials. The Corporation for Public Broadcasting will manage the project in conjunction with the Annenberg Schools of Communication at the Universities of Pennsylvania and Southern California.

with a view to presentation on open broadcast or cable; therefore, they are produced so as to appeal to an audience looking for stimulating television fare, as well as to credit students.

In other words, TV courses nowadays tend to be more than a series of videotaped classroom lecture-demonstrations with a textbook. Rather, they are "telecourses," or integrated learning systems in which varied components are coordinated to achieve carefully defined learning objectives. It should be noted, however, that there is nothing sacred about the TV course centering around 30 video programs, although this format works well with the lower-division student studying on his own. In certain courses, eight or ten video programs may very well be enough. As ITV becomes more widely used by postsecondary institutions and at higher levels, we can expect to see new models and formats developed.

What kinds of courses are offered on television?

Munshi classifies TV courses in four categories: (1) continuing professional education, (2) general interest, (3) core requirement courses, and (4) other. She admits that the categories, especially the second and third, overlap. The first category, courses designed for people in professions and occupations required by licensing agencies to update their skills periodically, is a rapidly expanding one, although in-service courses for teachers have been presented successfully on television for some years. "General interest" courses range from high-demand credit elective courses and "wrap-around" PBS series like "The Ascent of Man" to informal adult education series designed to enhance leisure time or improve personal competencies. The third category, of course, covers areas required or highly recommended for students in certificate and degree programs. The last encompasses the non-credit and remedial areas, although remedial-level television courses thus far have proved to be more effective in motivating viewers to seek assistance than in actually improving skills.

The Catalog of College Credit Mass Media Courses, which is published and kept up to date by the AACJC's Task Force on Uses of Mass Media in Learning (recently reorganized and renamed the Institutional Telecommunications Consortium or ITC), lists as available for lease or rental well over 100 TV courses. The courses listed have been designed as college-credit courses and produced for distribution and use outside the producing institution. Most were done by academic producers alone or in collaboration with commercial organizations. Several of the titles listed are so-called "wrap-around" courses, i.e., series like "The Ascent of Man," "Civilisation," "Classic Theatre," and "The Long Search" converted into credit offerings by the addition of special study guides, study materials, textbooks, and collections of readings. Over 100,000 students have already enrolled for credit in "The Ascent of Man," which has been broadcast several times by PBS stations and is available for institutional purchase in videocassette.

There are courses, however, that are a little difficult to fit into Munshi's categories unless we stretch the core requirement area a bit to include introductory-level courses in such career areas as business and computer science.

As indicated, there is a growing demand for programs in continuing professional education, e.g., in the health sciences, law, real estate, and other service areas. Some special agencies, for-profit businesses, are now springing up to meet this need. Some universities—e.g., South Carolina, MIT, Stanford, and Illinois

Institute of Technology--offer graduate-level courses on videocassettes or via instructional television fixed service (ITFS), a high-frequency transmission that requires special reception equipment. These courses, aimed at business personnel or engineers as they study in their places of employment, are simply videotapes or broadcasts of lectures as they are presented in a classroom to a group of students. Yet they satisfy the needs of working professionals desirous of earning graduate degrees or advanced qualifications.

What kinds of courses attract the largest enrollments?

What follows may seem a circuitous way of answering a straightforward question, but some background is necessary.

A lack of coherent curriculum planning is a problem that has plagued producers and users of TV courses over the years. This has been so even though, over the past 20 years, it has been apparent that the students who enroll in TV courses off-campus, like their fellows enrolled in conventional classes, are in pursuit of the degrees, certificates, and credentials that open pathways to success and prosperity in our society, regardless of their age. Men and women willing to devote the time and effort to completing a college-credit TV course usually do so to achieve a concrete goal, to move a step further toward a degree or certificate. The television viewer interested only in satisfying intellectual curiousity usually remains a viewer, or, if he does enroll, does so as a non-credit student to acquire study materials.

For one reason or another, too often in the past course planning has been on a hit-or-miss basis, with little thought given to planning and designing the articulated sequences of courses that would enable TV students to complete at least significant portions of the entry-level requirements, i.e., the required or recommended introductory courses in the humanities, natural sciences, and social sciences that make up the common core of studies in most colleges. The British Open University has flourished, not only because it offers opportunities for higher education in a country where such education has traditionally been closed to most people, but also because its degree-oriented programs are built around an articulated series of foundation courses.

A look at credit enrollments in "The Ascent of Man," one of the most highly acclaimed of the general cultural series, can be instructive in this respect. The size of enrollment is related to whether the college offering credit labels the course as one that satisfies some definite curricular requirement, or as an elective that does not serve any credentialing purpose. Ned Glenn, the dean of Miami-Dade's Open College, sums up the issue of what makes a TV course "popular" with credit students when he comments that "volume of credit enrollments is most often a function of a course meeting general or program requirements and not necessarily a measure of 'popularity'."[4] Still another inference can be drawn here. Although students who enroll in TV courses for credit may share some of the traits of the audiences that are regular PBS viewers, one should not assume that regular PBS viewers will enroll in TV courses. For one thing, many of these viewers already possess college degrees, and thus lack an incentive to enroll.

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[4]Unpublished memorandum, December 1978.

One thing more should be noted at this point. We can learn something from the experience of the Chicago TV College, which succeeded in attracting large enrollments year after year because it offered a sequenced program leading to the two-year associate's degree, in addition to having the inestimable advantage of a population base of some six million. But TV College officials learned early on that frequent repetition of the same courses led to sharp reductions in enrollment, with the consequent increases in cost (Zigerell and Chausow, 1974). What this means is that sufficient time must be allowed to elapse between offerings of the same course--a year and a half to two years--if the prime target is the mature adult studying at home on his own. The supply of this kind of student does not renew itself each September as does--or, at least, did until recently--the supply of 18-and 19-year olds.

What is the TV student like?

Let's start by noting that TV courses are not designed for the "average" student of normal college age who would require some form of regular face-to-face instruction and support to insure his success. Nor is the TV credit course suitable for someone with serious deficiencies in reading or basic learning skills unless, again, a good deal of face-to-face interaction can be built in.

The long and short of it is that TV study is not for everyone. The hard fact is that withdrawal rates in TV courses tend to be distressingly high, sometimes 50 percent or even higher in community colleges. Even after allowing for the relatively high attrition rate inevitable in an open-admissions institution like the community college and for extraneous factors that affect TV students more seriously than they do classroom students--e.g., delays in obtaining textbooks or delays in the mail—we must conclude that success in TV courses presupposes a high level of maturity and more self-discipline than the normal teenage student has.

The profile of the successful TV student has remained pretty much the same over the years. The characteristics of students who enroll in Dallas County Community College District TV courses, as described by Dallas researchers, are typical of most. Average age is about 30, and most are employed outside the home or are full-time housewives. More women than men enroll, and a disproportionately large number are Caucasians. Most have incomes in excess of $15,000 per annum. More than 85 percent are high school graduates, and about 50 percent have had some previous college work (ITV Close-Up . . . , 1978). With some exceptions—e.g., a study of the Maryland College of the Air reports that men outnumber women two to one (Rhines, 1977)--these are the lineaments confirmed all over the country. In socioeconomic terms, this is a lower middle-class profile. The outlines are blurred, of course, in places where large numbers of students of normal college age take TV courses along with their conventional courses, or where there are large numbers enrolled in unusually affluent areas, as in Southern California's Orange County.

A word should be said about the distressingly low number of blacks and Hispanics who enroll in TV courses. Even in such institutions as City Colleges of Chicago and Miami-Dade, where minority groups make up more than half of the total enrollment, minorities form a very small part of TV and other open learning enrollments. It should be noted, too, that some authorities in the United Kingdom are disturbed by the low numbers of blue collar workers, people deprived of all opportunities for higher education in their youth, who enroll in British Open

University courses. Ironically, the bulk of the enrollments is made up of teachers and technicians in search of higher qualifications. Some BOU officials explain away the irony by arguing that the teachers and technicians are themselves the children of working class parents and thus have their roots in the blue collar class.

How well do TV students do in their courses, particularly as compared with "regular" students?

The simple answer, one that often occasions a snicker from less well-disposed questioners, is that TV students do as well in their TV courses as students of comparable age and ability do in conventionally taught equivalent courses. During the 1950s and 60s, Schramm and others investigated various aspects of how viewers learn from and are affected by television. Many of the extensive studies conducted on student performance in TV courses from the elementary grades through college are described in Survey of Research in Instructional TV and Film (Reid and McLennan, 1967).

Among the most sophisticated of the performance studies carried out at the postsecondary level were those done at Chicago's TV College between 1957 and 1960 (Erickson and Chausow, 1958, 1959, 1960). The Chicago investigators added some important qualifications to the usual glib "no significant difference" conclusion of most other studies. They found, in the words of a still later Chicago report, that:

> (1) The at-home TV student, who is typically a highly motivated mature adult, tends to outperform his counterpart in age and ability taking evening courses on campus; and (2) the unselected student of normal college age watching a TV course in the classroom will not perform satisfactorily unless he is supplied with follow-up instruction on a regular basis. (Zigerell and Chausow, 1974, p. 8)

In comparing the TV student's performance with that of the student in the classroom, the Chicago researchers administered common examinations and controlled the important teacher "variable" by having the teacher who presented the TV course present the same course to the conventional class involved in the study.

These Chicago findings have been substantively corroborated by later surveys at Dallas, Coast Community, and the University of Mid-America (UMA). Future studies should, in fact, show improved performance. As Leslie Purdy, a Coast Community College District researcher and instructional designer, predicted in a forum at the AACJC's annual convention in 1978, now that the TV course designers are learning how to coordinate the video and non-video components of courses and match course components to particular instructional goals, students should show both improved performance and increased satisfaction.

The real breakthrough for TV course designers will come if and when students, given the choice of taking a conventional course or a TV course, choose the latter.

Can the entertainment features of "Sesame Street" be adapted to college level credit courses?

This is a version of another perennial question: Can a TV program both entertain and instruct at the same time? Some college-level course designers, with the astounding successes of "Sesame Street" in mind, have attempted to give video programs of a course in, say, accounting, fast-paced entertainment values. For their pains, they incurred the displeasure of serious-minded adult students more interested in learning the principles of accounting than in being amused by the antics of professional TV performers.

When "Man and Environment" was presented by Chicago's TV College, local officials decided to produce 30 low-keyed programs hosted by a teacher to complete a two-semester sequence. The Miami-Dade course was a pioneering effort, one of the first college-credit courses produced which was deliberately designed to exploit the affective and entertainment properties of the TV medium. David Giltrow, then an instructional design specialist with the TV college, seized the opportunity to assess student attitudes toward the two contrasting instructional approaches represented in the series, i.e., the teacher-directed, didactic approach of the Chicago produced programs, and the highly visual, lively documentary style used by Miami programs. An appropriate questionnaire was devised, and follow-up interviews were conducted with a sample of the credit students. All of the students reported that they found the Miami programs easy to watch and informative. But most also reported that they found the Chicago "talking head" teacher valuable in summarizing, synthesizing, and imposing structure on the material taught. When pressed to give the gist of a Miami program, an informant was able to recall only visual sequences or images. In short, students indicated that they preferred a mixture of the styles (Duby and Giltrow, 1976).

We should keep in mind that the general-audience series converted into successful college-credit courses feature such authority figures as Jacob Bronowski or Kenneth Clark, both teachers and TV personalities. For the most part--except for programs like the current "Shakespeare Plays" or "Classic Theatre," where the play forms the core of the course--video is best used to stimulate interest in an area, supply illustrations and demonstrations, and help pace a student's progress, especially if he or she has little or no contact with people on campus.

Can student success or failure in a TV course be predicted?

This frequently asked question was answered by implication when we sketched the profile of the successful TV student above. Maturity and self-discipline are the marks of a successful student who, for reasons of convenience or personal preference, studies on his own and needs only the barest minimum of face-to-face support. The British Open University recognizes the importance of personal maturity in distance study, and permits only students over 21 to enroll in the regular degree-oriented program. The BOU also screens students with deficiencies in basic skills, encouraging them to enroll in preparatory courses before they try their hands at the demanding curriculum. The U.S. version of the BOU, the National University Consortium, is following the lead of this model in imposing age limits and screening for deficiencies. In fact, any reputable institution discourages students who are obviously immature or who show little sign of academic aptitude from enrolling in TV courses that require largely independent study.

The increasing numbers of less mature students who are taking TV courses along with their conventional courses pose a special problem for the TV course administrator. As the Chicago TV College studies demonstrated, strong patterns of instructional support are necessary to assure their success. And all indications are that, with spiraling fuel costs soon to make daily trips to campus prohibitively expensive and with multi-channel cable TV reaching into more and more American homes, more students will be combining conventional classroom study with TV courses. The lesson to be learned from the experience of others is plain: the "typical" student of normal college age in this kind of program will have to be provided with such additional support as face-to-face conferences, telephone consultations, computer-based tutoring and testing, and/or self-scoring progress tests.

Signs of responsibility and a high degree of motivation--as well as a record of achievement in the past--seem to be the surest predictors of success in TV courses. Another Chicago TV College study investigated student characteristics that forecast success, and found that most of the TV at-home students who completed the course successfully were those who had returned, early in the term, a questionnaire soliciting information on what difficulties (if any) they were encountering in finding textbooks, getting course materials, and the like (Giltrow and Duby, 1976).

Do we know what happens to students who take TV courses?

Any attempt to answer this question must be prefaced by an admission of vast ignorance since, unfortunately, very few longitudinal studies of the kind required to supply this information have been conducted. Most ITV projects have not been in operation continuously long enough to provide the depth, and, even if they had, few have sufficient personnel and money resources to take on such an investigation.

But the experience of most institutions warrants this conclusion: many of the students who take TV courses transfer later on into conventional programs of study. A definite pattern revealed by annual surveys of graduates of the City Colleges of Chicago shows most TV College students turning up in courses on campus after having completed, at most, four or five courses on TV. With this pattern currently being replicated at Dallas and Coast, a strong case can be made to suspicious faculties for TV as a recruiter of students for regular on-campus programs, as well as a whetter of appetites for further higher education.

In 1963, after a full seven years of operation, the Chicago TV College mailed out a follow-up questionnaire to about 700 graduates of the City Colleges of Chicago who had completed all or part of their course work via TV. In addition to being polled on their attitudes towards their TV courses; they were asked about their subsequent educational experiences. Most of the 300 who responded indicated that they had found their TV courses both demanding and satisfying, and many volunteered the information that they had found their TV courses much more tightly organized and better presented than the courses they had taken in the classroom. As might be expected, the more courses they had taken on TV, the more they favored such courses. Thus, those who had taken the equivalent of a year's work through TV courses preferred TV study to classroom study, while those who had taken only a few TV courses inclined toward conventional study. Even more gratifying for TV College administrators was the report by those who had

gone on to other colleges and universities that they had performed at the same level in their advanced work as they had in their TV courses (Erickson et al., 1964, p. 18).

Perhaps this is the place to issue a caveat. Despite all the curent talk about enabling people to earn degrees in non-traditional ways, there is little evidence that sizable numbers of students, given the opportunity, would complete lengthy sequences of non-traditional study on a part-time basis. However, with the advent of video-related programs like the National University Consortium and the Wayne State To Educate the People Consortium, perhaps we can expect that more adults will move all the way to bachelor's degrees in non-conventional ways.

There are so many conventional study opportunities available for the part-time student in this country that it is only reasonable to expect adults who are not barred permanently from conventional programs by physical handicaps or confinement of one kind or another to combine conventional and non-conventional modes of study. Once again, the long-term experience of the Chicago TV College is instructive. It was possible in Chicago, until about 1976 or 1977, to complete an entire two-year college program by taking TV courses at home. Of the approximately 500 men and women who availed themselves of this opportunity over a 20-year period, about 375 were inmates of the four penal institutions served by the TV College program, and another 25 or so were people who were homebound because of physical or other handicaps.

The paucity of research in this area leaves some important questions unanswered: Do people who have completed all or significant portions of TV-based and other non-conventional programs adapt easily to conventionally presented advanced programs? Are they as well prepared as graduates of conventional programs? and What difficulties do they have, if any, in finding acceptance for their unconventionally earned credits?

What is the overall college-level ITV picture in the U.S. and abroad?

We have referred several times to the acceleration of ITV activity in U.S. higher education. Much of the activity, it is true, is still confined to the two-year community college--not surprising in that these colleges have a strong commitment to "openness" and reaching out to hitherto unserved men and women. The AAJC's Instructional Telecommunication Consortium (ITC), a co-sponsor of this publication, now includes about 20 institutional and consortial members. The consortia involved are large ones, representing more than 75 colleges in the New York-New Jersey area, the San Francisco Bay area, and Southern California. The institutional members are large multi-campus districts located in all the major regions of the country except the Pacific Northwest. Among the current members are the major two-year college producers of TV materials: Dallas, Coast, Miami-Dade, the Southern California Consortium for Community College TV, Los Angeles, the Milwaukee Area Technical College, Northern Virginia, and Puerto Rico, which produces bilingual video materials. It is anticipated, on the basis of inquiries from prospective members, that ITC membership will expand to 30 or more with a year.

A group of community college administrators and state education authorities recently recommended that the original Task Force be expanded and restructured as a permanent agency within the AACJC, so as to be more responsive to the distinctive interests of the growing number of community colleges that are

becoming regular users of TV courses. Colleges that make TV courses part of their instructional program year after year, but have no desire to become producers of materials themselves, feel the need for a voice in curriculum and content planning. This is the genesis of the current ITC.

As already noted, the activities of the National University Consortium and the Wayne State Consortium are strong signs of the increased interest in uses of television in upper-division education. The University of Mid-America has announced its plans to dissolve its present consortial base of seven midwestern universities and become a free-standing American Open University that would award degrees to qualified students who present credits earned through examination, appropriate life experience, technology-based study (including TV courses), and conventional study at other colleges and universities. The Annenberg Foundation's much publicized interest in supporting the production of university-level TV courses through the Corporation for Public Broadcasting has excited a good deal of interest. At the time of writing, no decision as to what direction the project will take has yet been made, although various agencies are now engaged in fact finding for the Annenberg Foundation and CPB.

Several factors have helped to stimulate the acceleration of ITV activity. With declining enrollments, the interest in using television to reach new students has probably never been keener among colleges and universities, and every major higher education association now has a standing committee or task force on TV and technology-based instruction.

The new delivery technologies are also sparking enthusiasm for ITV. Municipalities awarding franchises to cable television operators require, as a matter of course, that a channel or channels be dedicated to education and community service. Videocassette players, which become less expensive each year, are now common sights in public libraries and community centers, and can easily be placed wherever there are people interested in taking TV courses, e.g., hospitals, police and fire stations, business and government offices, or company lunchrooms. Inexpensive videodisc players will also become common in the near future. Then too, there is the broadcast satellite, which now brings events from all over the world into our homes as they occur. Early in 1981, the Public Broadcasting Service (PBS) will inaugurate a special educational/instructional service, PTV3. Every day a satellite will beam several hours of postsecondary-level programming, including college courses, to PTV stations and cooperating cable systems, which have several options. These programs can be transmitted to viewers in their homes and elsewhere as they come off the satellite, or they can be recorded for later broadcast or for use in closed-circuit modes.

For that matter, the Appalachian Satellite Authority, which has a particular interest in the in-service training of teachers and health professionals in rural areas, is already using a satellite to bring college courses and a variety of instructional programs to its constituency. Special groups--usually for-profit organizations--are also now being formed to produce video materials for continuing professional and occupational education, and we can expect to see much more of this kind of programming carried on television.

Outside the U.S., of course, the picture is dominated by the British Open University, certainly one of the most exciting educational ventures of our time. As is well known, the BOU was planned by the Labor government of Harold Wilson and masterminded by Jennie Lee, a Labor minister of culture and education. It was established, with some reluctance and considerable reservations, by the Conserva-

tive government that succeeded Wilson, to provide a first-rate degree-oriented program for the many men and women deprived of educational opportunities in their youth. Television and radio, both controlled by the government in Great Britain, were to be used for some of the instructional delivery. In a society where higher education has always been elitist and educational opportunities much scarcer than in the U.S., the BOU caught on immediately. Some 65,000 students--a limit set by the government--now enroll, and over 21,000 have received degrees in the ten years of its operation.

Based on solid interdisciplinary foundation courses, the BOU curriculum is demanding and distinctive, and the printed materials prepared for the courses are uniformly excellent. TV programs, especially in the humanities and the social sciences, are often first rate. However, for a number of reasons--including cost--television has become a smaller and smaller instructional component as time has passed. For some courses, only as few as four or five video programs are produced.

BOU is by far the most emulated of the world's open learning projects. Versions of it can be found as far afield as Costa Rica and Hong Kong, with the Saudi Arabians now planning one of their own. Most, however, do not rely as heavily on television as the U.S. projects do. One reason for this, of course, is that in many of the developing nations interested in open learning, television is not widespread or accessible to ordinary citizens. Indeed, in some of the countries involved, there is not yet a reliable postal system for the delivery of correspondence lessons.

With the education of adults "at a distance" a snowballing movement on a worldwide scale--an important manifestation of international interest in lifelong learning as we move into the new century--we can expect that interest in and use of ITV as a component of open learning programs will continue the current trends.

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RESEARCH ON TELECOMMUNICATIONS AND THE ADULT LEARNER

James S. O'Rourke IV

What kind of research has been done in this area?

Television, in the view of many who ought to know, is destined to become part and parcel of the process of education, particularly in postsecondary education.

James N. Martin (1978) feels that the future of education--both in this country and abroad--is inextricably linked with technology. He tells us, in fact, that the only way out of many of the predicaments in which we now find ourselves is not less technology, but more. That, of course, is where television comes in.

A substantial amount of research has been done since the early 1950s on the role which various learning aids may play in the process of education. Television, in particular, has been awarded its share of attention in the classroom, the laboratory, and in the field.

The past 30 years of research into learning from audiovisual materials, including television, has produced a number of studies, virtually all of which point to some measurable impact on the cognitive, affective, and behavioral processes of the learners involved. That is to say, we know for certain that television and other audiovisual media do not have a null or unmeasurable effect on the learner. We know for certain that when students are exposed to telemediated instruction, they are affected in a real and measurable way by what they see and hear.

Literally dozens of studies in recent years have sought to isolate the impact and measure the value of the various attributes of audiovisual media, including such things as color, pictures, motion, sound, and feedback. The results of these efforts appear to be mixed, and a thorough understanding of television's value as an adult instructional medium may well depend on the degree to which educators are able to exploit its stronger educative characteristics without falling into the numerous attractive instructional traps which appear to exist.

What are the instructional values of the various attributes of AV media that are found in television?

Despite the fact that educational researchers have been unable to isolate one set of instructional variables or media attributes which are most effective for all learning situations or all learning groups, a number of studies have shown certain variables or media attributes to be of value in specified learning circumstances.

Visuals. Television is, of course, a visual medium and may be used to communicate images or concepts when language is referentially insufficient, either because the intended audience has not yet learned the concept or because the concept does not exist in the audience's language (Levie and Dickie, 1973, p. 863).

In simple recall tests, Lieberman and Culpepper (1965) and Dallett and Wilcox (1968) found pictorial material to be superior to verbal material. Pavio, Rogers,

and Smythe (1968) provide similar evidence and seem to think that pictures may be more memorable because they are encoded in both verbal and nonverbal memory.

Samuels (1967) demonstrated that pictures may be used as prompts for the recognition of unfamiliar words but cautioned that pictures may also miscue or divert attention from textual materials. Assuming that written instructional materials are employed before and after the use of television, and not concurrently, Samuel's findings should pose no problems.

There is a value to visual material which goes beyond pure recall and test score comparisons, however, and that is the qualitative difference which it may bring to the instructional task. Baker and Popham (1965) found that adding pictorial embellishments to verbal material did not increase learning, but resulted in higher ratings for interest and enjoyment. Watching visual images on a TV screen may be, frankly, more enjoyable than reading about the lesson material in a text, no matter how engaging or fascinating the written material.

While research findings have demonstrated that visual materials may be used to illustrate and teach material having specific real-world referents, and while it has also been shown that visual materials may facilitate both comparison and quick recall as well as increased enjoyment and interest in the lesson, the use of both aural and visual materials together--as in television--may have certain synergistic advantages not possessed by either channel alone.

Audio and Video Together. A number of researchers have compared the instructional value of aural and visual materials with mixed results. In their review of the literature in this area, Levie and Dickie found audio messages superior to visual messages just about as frequently as the reverse was true (1973, p. 868).

One important finding in this area, however, is that there are learners who may be identified as "visual attenders" and those who may be identified as "aural attenders" (Ingersoll, 1970). That is to say, when information is presented simultaneously through two channels, certain learners were found to recall more visual stimuli, while others were found to recall more auditory stimuli. The implication here seems clear: while aural material may serve to explain or reinforce visual information, it may also reach a significant number of learners who do not readily attend to visual material.

Ingersoll's work was preceded by the research of May and Lumsdaine (1958) which indicated that learning may be enhanced by word-picture combinations. Likewise, Severin (1967) discovered when testing for recognition that a word plus a related picture combination was superior to either alone, and that a combination of an unrelated picture plus a word was inferior to either alone. For instruction by means of television, then, it seems apparent that both audio and video are of significant value when presented together, as long as they are related. Either channel may carry the prime thrust of the message, while the other channel serves as reinforcement.

Color. Some years ago, Rudy Bretz asked, "If color TV is worth over three times as much as black-and-white to a viewing family, why shouldn't color TV be worth three times as much in instruction?" (1971, p. 51). The answer to that question is not particularly easy.

Over the past 30 years, considerable research has been conducted into the effects of color on learning. Reid and MacLennan (1967), Kanner (1968), Bretz

(1971), Tolliver (1970), and Schramm(1972) all seem to agree that, with few exceptions, the majority of studies have shown no significant differences between the values of color and monochrome in televised instruction.

A series of studies by Joe Kanner (1962) revealed that groups who watched black-and-white television learned just as much as groups who watched the same programs in color because the colors, where they were important to the objective, had been identified verbally. Where color was not important to the objective, the reason was more obvious: color produced no additional effect over black-and-white because none of the evaluation criteria depended on color knowledge or recognition.

There have been a number of empirical findings, however, which seem to demonstrate that the addition of color in programming does facilitate learning: Weiss and Margolius (1954), Green and Anderson (1956), Peterson and Peterson (1957), Bourne and Restle (1959), and Saltz (1963). In a series of studies between 1967 and 1970, Dwyer found color to be an important instructional variable for improving student achievement of specific educational objectives.

Rudnick, Porter, and Suydam concluded in 1973 that while color frequently does not contribute to learning, it may be useful when it is employed to emphasize learning cues. They also note that learners generally prefer color and that viewers' emotions are often affected by the presence of color in televised instruction (p. 26).

For instructional purposes, then, television in color is more attractive and interesting for the viewer, but is generally not considered to be more effective than similar content broadcast in black-and-white, except in special circumstances where learning may be entirely or partially dependent upon color, or where effective responses may be important to the learning situation.

Motion. Comparisons of moving pictures with equivalent static versions usually show no difference in learning except when the concept to be learned deals with motion or change; then, of course, the moving version is superior (Silverman, 1958).

Houser, Houser, and Van Mondfrans (1970) found that when motion was a defining attribute of a concept, moving pictures were superior to slide presentations. Weintraub (1968) found an overall superiority for motion pictures as compared with equivalent still pictures over a range of subject-matter content and instructional objectives, but particularly in the instances where the content entailed motion itself and when motion helped the viewer separate an important figure from ground.

These and other studies have demonstrated the circumstances under which motion may contribute to learning. Thus, if television is to make a meaningful contribution to learning, justifying the added expense at which it provides movement in the visual presentation, it should take advantage of this attribute by depicting lesson-related material which involves movement or change.

Feedback. Two important attributes of programmed materials identified by Levie and Dickie are provisions for learner response and immediate feedback. "It seems reasonable," they write, "that giving the learner practice in what he is expected to do and informing him of his success or failure should facilitate learning." (1973, p. 875).

In their review of several dozen studies dealing with the value of active responding during a televised lesson, Levie and Dickie note that about half of them resulted in no differences in post-test achievement, while about a third of them showed overt responding to be superior; a few others favored covert responding (1973, p. 876). Other researchers, including Schramm (1964), Holland (1965), May (1965), Anderson (1967), Popham (1969), and Gagne and Rowher (1969) seem to agree.

Researchers such as Guthrie have found that feedback or knowledge of results which provides the correct answer is better than simply telling the learner that he was wrong. "Generally," they say, "knowledge of results is beneficial to the degree that it adds to information" (1970, p. 876).

What are the general findings about television?

Reviewers such as Hoban and Van Ormer (1950), May and Lumsdaine (1958), Reid and MacLennan (1967), Levie and Dickie (1973), and Allen (1974) have discovered that, when properly implemented, instructional programs employing audiovisual materials—television included—can have a positive and measurable impact on the learner. Most of them conclude, however, that there is no single identifiable attribute or variable inherent in these instructional media which can account for more learning across time than any other. Most researchers further conclude that there is no combination of presentational circumstances or instructional variables which is best for all learning groups.

What these studies tell us is something we've known intuitively for years—learners are individuals and they will respond in unique and different ways to learning materials. These findings apply to television just as they have applied to other educational devices and strategies over the years.

There seems little question that the audiovisual characteristics inherent or employable in television can be of instructional value, but the research points to some important limitations.

Reviewers such as Chu and Schramm (1967), Ohliger (1968), Blakely (1974), and Comstock (1978) point out the fact that televised material has been shown to have a measurable effect on the cognitive, affective, and behavioral processes of the viewing audience—just as other audiovisual materials do—but those effects can differ according to age, subject matter, aptitude, and certain other variables related to the presentation.

Television, these people say, can be used to teach nearly any subject matter where one-way communication will contribute to learning, but in virtually every one of hundreds of studies comparing televised instruction with face-to-face instruction, no discernable significant differences resulted between the two approaches. Does this mean that television doesn't work in such instances? Not at all. What it means is that there is no difference in learning in such situations—an important distinction to educators looking for alternative approaches to instruction.

Television can achieve a number of important objectives for educators, and can provide the student with learning experiences not readily available in other forms. As George Gordon noted some years ago, however, no essential—or even

significant—change is made in the quality of teaching by the television instrument. Television cannot make a bad lesson any better, nor can it rescue a program which is not achieving its educational objectives for other, more serious reasons. In Gordon's view, "Television's power . . . lies largely in its ability to transmit the humanity of individuals and their unique talents through time and space." Not bad, provided we can find people with talents worth transmitting (1970, p. 120-121).

Instructional television has been used as an integral part of a wide variety of educational programs for learners from six to 60 around the world in support of a full spectrum of instructional objectives. Almost invariably, where it is being used the most effectively, television has been built into a complete teaching-learning system. That is to say, television is almost never able to accomplish the entire educational task alone. Sure, there are instances in which television has been used successfully to educate, without the aid of correspondence materials, classroom teachers, personal counseling, or instructional devices, but the success stories are vastly outweighed by the failures in this realm, and usually at an enormous cost as well.

What are the relationships between the medium, presentation form, and content?

Television has its share of success stories, though, both in the classroom as a part of a larger instructional program, as well as outside the formal classroom in such projects as Britain's Open University, the University of Mid-America, and Chicago's TV College.

In these instances, television has shown its power to bring instruction in a variety of subjects to vastly different groups of people striving for markedly different educational objectives. But, was it television alone which accounted for the success? And, is it possible that another medium could have been used with similar success and perhaps at a lower cost?

A number of researchers in this area, such as Tosti and Ball (1969), caution against confusing the effects of medium, presentation form, and content. Their message is important, and it must be acknowledged that various other audiovisual media may well be able to obtain the same educational results as television. The element at work in such circumstances, according to Tosti and Ball, may be the form in which the message is presented, or it may be the medium itself—they are really separate phenomena. Thus, television is not necessarily the only answer for educators seeking an improvement in learning. Administrators should be skeptical of claims that "television is the only answer to our problem" or assertions that "no other medium can do the job that TV can do." The claims may well be correct under the right circumstances, but considering the levels of technology involved, not to mention the sizable sums of money, administrators would do well to move cautiously in the company of those who extoll the virtues of television to the complete exclusion of other educational strategies.

What are some of the things which television cannot do?

By and large, there is a great number of things which television cannot do, and the video zealots who inhabit each of our institutions have done no favors either for television or our students by claiming omnipotence for the medium.

Specifically, we should recognize that television cannot rescue a failing educational program, nor can it resuscitate a dying institution. It looks jazzy and it creates the impression of being both instantaneous and important, but television simply cannot make a bad program any better.

Television works best when it's applied to educational programs which are well-defined, carefully planned, and professionally executed. We've all seen the instructor who'll say, "Gee I dunno . . . this lesson looks pretty weak. I think I'll add a videotape." Will that help? Not likely. That is, unless the videotape was specifically scripted, shot, and designed with that instructor's subject matter, students, and educational objectives in mind. Since it's now the night before he has to teach the lesson, chances that he has found just the right thing for his students are fairly slim.

We should recognize, further, that not all students have the same levels of motivation, apprehension, and retentive capacity. To be perfectly truthful, that statement applies to one classroom full of sophomore English Literature students as well as it does to the vast, unseen audience for "Sunrise Semester" each morning.

The point here is that we're not all driven by the same forces to learn and remember. We're not interested in the subject matter in precisely the same way. And, of course, we don't all have the same powers of storage, retention, and recall. Soldiers, sailors, and airmen are motivated in a much different way than factory workers are, and they're both different in their motivation from college students, elementary school children, and adults enrolled in a night-school course.

Television doesn't do well with large amounts of information, highly detailed data, complex numbers, figures, or relationships, or with material which requires extensive time and eye-scan to comprehend. It's hard for the TV screen to deal with panoramic views, busy visual patterns, or simultaneous multiple images. It is, as we've heard for years, a close-up medium. That means, of course, that the lens must be close to the subject. The closer the viewer gets to the screen, the fuzzier the image will become--the presence of large-screen TVs in taverns and pubs demonstrates this point nicely. None of the front-row seats is taken.

Television doesn't save money. If a school district is in financial trouble, it won't help a bit to run out and purchase a closed-circuit TV system. You can't avoid hiring competent classroom teachers by substituting television images--it just doesn't work. In fact, television gets more and more expensive as each day passes. The cost of equipment, spare parts, additional studio gadgetry, and skilled professionals to operate and repair them has become more costly as you sit here reading.

Finally, television will not replace or even substitute for a creative human mind. People tend to think of television as a "creative medium." It is. But there's nothing inherently creative about the lenses, tubes, wires, and images which it will produce. What is creative about television is the manner in which it is used by professionals who understand their business. It's just like the computer. You put garbage in, you get garbage out. And if you think instructional television systems won't produce garbage, just ask your student's what they thought of that last local production. Some of their responses may be most unflattering.

What kinds of things does television do well?

Well, if television is so inept at all of those things we've just discussed, just what can it do?

The answer is plenty, but only if we're careful in our approach.

Television can bring to the classroom things which the student might never be able to see in any other way. Or, it can familiarize the student with that which he is about to see and must be able to recognize clearly when it occurs.

Television can magnify the microscopic. It can transmit beautiful color pictures instantaneously over vast distances; people can share the same experience at the very same time, though they may be separated by millions of miles in space--it all happens at the speed of light.

Television can show us things as they move, let us hear things as they make noise, and do it at the same time. We can see the non-verbal reactions of a man or woman being interviewed; we can watch the litmus paper turn blue and the chameleon change colors.

We can see it again on videotape--again and again. A generation of students, unborn when John Kennedy died, have watched his killer meet his own unseemly end in a Dallas parking garage--all on television. We can see it happen much more slowly than it did in real life. The quarterback can deceive the linebacker time and again, but cannot foil the viewer's eye on television, for the television recording disc can slow the action down to the point at which it's barely moving at all.

Television can provide us with a sense of motion where none appears to exist; time-lapse photography allows us to see growth, development, and change in just a matter of seconds. The TV screen can juxtapose elements which are widely separated in time, space, or consciousness. It can be done with split-screen images or clever editing, but we'll see them just as if they were together, on our TV screens.

Television can do myriad things in an educational program because television can do the very same things in the mind of the viewer.

What is the task of the educator?

In a landmark collection of essays, Alfred North Whitehead (1929) observes that education has but one purpose. Because the students are alive, he says, the purpose of education must be to stimulate and guide their self-development. He notes that while universities are schools of education and research, the primary reason for their existence is not to be found in either the knowledge conveyed to their students or in the opportunities for research afforded members of the faculty.

"So far as the imparting of information is concerned," he writes, "no university has had any justification for existence since the popularization of printing in the fifteenth century." The justification for a university--or any educational institution for that matter--is that it preserves the connection between knowledge and the zest for life.

> The university imparts information, but it imparts it imaginatively. At least, this is the function which it should perform for society. A university which fails in this respect has no reason for existence. This atmosphere of excitement, arising from imaginative consideration, transforms knowledge. A fact is no longer a bare fact; it is invested with all its possibilities. It is no longer a burden on the memory; it is energizing as the poet of our dreams, and as the architect of our purposes. (p. 93)

Thus, the task of a learning institution, in Whitehead's view, is to weld together imagination and experience. This would seem true of all institutions of learning, regardless of their location, enrollment, or curriculum. To assist the institution and its educators in their task of welding experience with imagination to stimulate that "zest for life" in the student, curriculum managers and administrators must avail themselves of every opportunity, every circumstance, and every device which may reasonably be expected to help them succeed.

It is in this sense that television may be most productive and most useful. Johannes Gutenberg made it possible in 1456 to store large amounts of information for future generations of scholars to peruse at their leisure, but he did not provide them with means to motivate a recalcitrant student. If it is true, as has been shown in dozens of studies over the past 30 years, that television can effect a measurable impact on the affective and cognitive responses of a learner, if it can provide a stimulus to further inquiry and imaginative thinking where none existed earlier, then television is not only educationally justifiable, it may be just what you're looking for.

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PLANNING AND DESIGN PROCESS

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Where do we start?

As with any curriculum design project, the first and key step in the process of designing and establishing an instructional telecommunications operation is a needs assessment study. Such a study should address not only the real and perceived needs of the potential student population and their demographic characteristics, but the goals and missions of the institution, availability (or obtainability) of the resources necessary to mount a significant effort successfully, and the level of commitment and support to be expected from the chief administrator and faculty leaders.

Instructional needs assessments conducted to date range from the statistically controlled and sophisticated to the offhand. A profit-making organization interested in supplying telecommunications services to customers, Hughes Aircraft Corporation, and an academic agency, the University of Mid-America, have surveyed broad samples of the population to determine the formal and informal needs of potential audiences. Every college offering TV-based instruction on a regular basis asks its students, as a matter of course, to complete questionnaires in which, among other things, they are polled as to their programming preferences.

How do we identify the potential student population and its needs?

The assessment undertaken by the Coast Community Colleges District exemplifies a carefully planned procedure undertaken by an academic producer. KOCE-TV, a public UHF station owned and operated by Coast Community Colleges, began operation in November 1972 and, with funding from the Corporation for Public Broadcasting, conducted a series of surveys in its service area. A telephone survey of 2,873 telephone subscribers in 1973 collected information on the characteristics of the KOCE-TV audience as well as their perceptions of public service needs and their interest in college level television courses. Respondents were also asked to suggest topics or areas for courses that they would be interested in, and a follow-up survey was conducted in 1974 (KOCE-TV, 1974a, 1975a). Videotaped discussion panels composed of community leaders representing ten distinct population groups focused on ways in which the station could serve these groups, including both informal and credit telecourses (KOCE-TV, 1974d). Groups of lay people from the five most clearly defined groups subsequently reviewed the tapes of these discussions (KOCE-TV, 1974c). Two additional studies examined the ways in which people in the service area learned about public service programming and telecourses (KOCE-TV, 1974b, 1975b).

However, most institutions do not conduct such extensive surveys of potential telecourse student audiences. Questionnaire surveys are expensive, and experience has shown that there can be a very real gap between the expression of interest and actually enrolling in a course. Some of the reasons for this discrepancy were explored by the University of Mid-America (UMA) when the enrollment in SUN (State University of Nebraska) courses dropped sharply in the second semester they were offered, even though a high level of interest had been expressed by potential students in surveys. A follow-up of individuals who did not enroll in a course after

requesting information identified a number of factors which could influence the decision to enroll and elicited suggestions for courses in which the respondents would be interested. Walsh discussed seven of these factors in the context of institutional goals: cost of tutition and course materials; need for greater awareness of educational opportunities; need of the sponsoring institution, industry, or community to establish credibility; perceived worth or value of education; courses being offered; entrance qualifications and self concept; and availability or accessibility of educational offerings (1975). In her analysis of these factors, Williamson designates costs, promotion, and course needs as high priority areas for the sponsoring institution, and discusses the interaction of cost with various other factors (1975).

Fortunately, a body of data on students who have enrolled for credit in telecourses is available, and can be used to predict with some accuracy what the student vewers in a telecourse will be like. Although the data varies from course to course and from college to college,* the general profile remains much the same (Hewitt and Lee, 1979, p. 15).

Such information is plentiful. The Dallas County Community College District (DCCCD) has been compiling information about the telecourse student since the beginning of their program, using telephone surveys, student questionnaires, computer print-outs of demographic information on students, comparisons between telecourse and on-campus student demographics and characteristics, and special projects designed to obtain "typical student" profiles (ITV . . . , 1979). UMA analyzed data taken from registration forms and student questionnaires to determine the characteristics of the students who enrolled in the first three SUN courses (Eggert, 1975), and the KOCE-TV needs assessment project included three such studies. The second, in the spring of 1974, surveyed 3,230 students in five courses—anthropology, freehand sketching, physical geography, family risk management, and sewing—and the third compared the results of this study with a comparable survey done the preceding semester. These studies provide demographic information on students who dropped out as well as those who completed the courses, the grade distribution, the proportion of students in credit and non-credit courses, and student evaluations of specific courses (KOCE-TV, 1974e-g).

Predicting the number of students who will enroll in a given course is more difficult, and this can pose a real problem for producers and publishers of study guides, books, and other print materials designed to accompany the television component. Publishers have reported book returns as high as 50 percent, and Dallas, even with several years of experience in presenting telecourses, has about a 25 percent return on its books. However, it is also possible to be too conservative, as when Coastline under-ordered by more than 200 books for "The Shakespeare Plays." Munshi bemoans the lack of research that could serve as a basis for the development of dependable guidelines for such predictions (1980, p. 47).

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* See Zigerell, p. 6 of this publication.

What do we know about viewers--"informal" learners"--who follow courses out of general interest, to satisfy intellectual curiosity rather than to earn credits?

Over the past 20 years, occasional studies of the size of the audience for ITV programs presented on open air have been made by rating services. One such study disclosed that an average of about 10,000 viewers watched a single program of the Chicago TV College out of general interest. A recent survey in Chicago indicated that a program of the Kentucky GED series, a non-credit offering designed to encourage and help people prepare for the high school equivalency examination, may be viewed by as many as 10,000 viewers at noon on Saturday. Although the latter figure may not seem particularly relevant to this question, since most of the viewers are watching for reasons other than the desire for intellectual challenge, it is significant in that it confirms that there is a sizable audience of "informal" learners out there. On the whole, surveys of the total audience for programs of well-produced series distributed by academic producers--surveys conducted by Coast Community Colleges District, for example--indicate that the number watching at times approximates that for a program of a PBS general-audience series.

Yet there is a great need to fill the gap left by our admitted ignorance of the characteristics and wants of the many people willing to watch an instructional program without enrolling for credit. CPB's Adult Learning Service has recently commissioned a study of such informal learners and an adult education specialist from the University of Maryland has been engaged to devise a method for the study, which will focus on who they are, what their goals are, and how many can be induced to enroll formally.

What kinds of resources are needed to supply programming needs?

The production of a course for television is both complex and expensive, and it is essential that a realistic appraisal be made to determine whether sufficient funding, staff, and facilities are or can be made available to the producer. While the costs of production can vary widely, depending on the desired production quality and the availability of resources, all entail the services of specialized staff, including instructional designers and "actors" to present the material, whether they are qualified faculty from the institution or imported talent. Facilities and equipment for filming may be furnished by the institution (under the rubric of overhead?), but videotape must be purchased, and printed materials for the course must be developed and produced if they are not available commercially. If the institution does not own broadcasting facilities, arrangements must be made with local stations, which may or may not donate time for such a project.

Once the programs are produced, institutions must provide for administration, recruiting and enrolling students, and providing student support services --all of which require much time and effort. Both clerical and professional staff time are involved here, as well as supplies, postage, and the development and dissemination of promotional materials. Evaluation studies based on student surveys and class data will require additional staff time at the completion of the course.

What administrative and faculty support are important to the success of the project?

Since telecourses cannot be offered in a vacuum, such support can be crucial. The course must be approved by an appropriate curriculum committee or faculty group before it can be offered, and a place made for it either in the appropriate academic department or extension course unit. Such policy matters as the kind and amount of credit to be given, grading options, student prerequisites, and the extent of the financial commitment of the institution must be decided. Representatives of the faculty, administration, and public relations staff should be included in the initial design and planning stages, and their input and cooperation requested during development and implementation. The chief administrator is also a valuable asset in dealing with such outside agencies as the local public television station, the state legislature, and professional associations, as well as any faculty members who may feel threatened by the establishment of a telecourse program.

Do I have enough information at this point to start planning the course?

Yes. This is the time to set the goals and develop the "game plan" that will guide your progress through the remaining steps. Contingency plans to provide alternative courses of action if the original does not work out as expected should be built into the plan, as well as provision for systematic program review and evaluation procedures.

How can I get funding for the project?

This is a critical question for all of us these days. Unless funds are already committed or readily available, the first task is to identify sources of money and support. Some possibilities worth exploring include:

- Grants--federal government, state government, local, foundation.
- Cooperative arrangements with business and industry.
- Cooperative arrangements with commercial or foreign broadcasters. Miami-Dade, for example, has produced a drama series (distributed by Films, Incorporated) in cooperation with a BBC agency that filmed British actors doing the plays.
- Consortial arrangements with sister institutions--local area, state-wide, national—with a sharing of costs and services.
- Institutional funds.
- Pay-as-you-go, hoping to find support at each separate stage. If this is your only alternative, you will probably never get a significant, useful program off the ground. It might be better to re-examine your goals, priorities, commitments, and resources.

Just a word about cooperative production arangements: since the production of a telecourse comprising 30 programs, each 30 minutes long, that will be marketable to other institutions is so costly, it is not uncommon nowadays for community colleges to pool their resources in the co-production of courses. Of Man and His Earth, for example, a successful and widely used course in cultural geography, was co-produced by the Maryland Center for Public Broadcasting and the City College of Chicago. The Chicago community college district contributed

a sum of money to help underwrite costs and the services of a geographer from one of its faculties to help in content planning. The Maryland Center, a state authority which operates a TV broadcast and production facility, contributed its professional staff and facilities over the period of almost two years that the course was in production. In addition, the center assigned a person to locate and clear existing film for use in the series. Such a telecourse would certainly have been beyond the reach of either the Chicago college or a Maryland community college working on its own.

For readers who wonder about the availability of outside support for production, it should be noted that a number of academic producers--e.g., UMA and Coast--find government and private foundation support. Others--notably Coast again, Northern Virginia Community College, the Southern California Consortium for Community College Television, Miami-Dade--have collaborated with commercial publishers and audiovisual distributors, with the latter contributing financial support and, in return, reserving certain rights in the video and print materials produced. Bergen Community College of New Jersey works extensively with CBS in producing and presenting early morning courses on network stations. Bunker Hill College in Massachusetts has entered into interesting arrangements with local industrial corporations whereby the college presents video-based instruction in occupational and general education subjects on company sites. The Milwaukee Area Technical College has always cooperated extensively with local industries and state governmental agencies in developing and presenting video-based instructional materials, particularly in vocational/occupational areas, as have Dallas and Tarrant County Community College Districts in the Dallas-Fort Worth area.

It seems inevitable, given the high costs of telecourse production and the resultant necessity of ensuring wide usage to justify such costs, that there will be more and more production on a consortial basis.

How do I determine the kind of staff I will need for the project?

Now that the game plan has been developed and funding arranged for, it is time to decide the number and qualifications of staff members you will need to come up with a successful product. The formation of a team of experts was found to be a fruitful approach at Dallas. Such a team usually includes the following: a program administrator who is very conversant with the latest approaches to mass media learning; an instructional telecommunications design specialist familiar with instructional technology and applied learning behavior theory; a television producer or producer/director experienced in the application of production elements and techiques to effective learning; a film director/cinematographer skilled with color-sound film making and/or TV camera techniques; an experienced film or videtape editor; trained script writers and a skilled rewrite editor/copy reader; content specialists in the subject area; a graphic artist; and clerical support people.

If you must operate your own production studio and transmission facility, you will need yet another covey of professionals, i.e., engineers and a technical crew. Since colleges that maintain facilities capable of work of broadcast quality must do so on a year-round basis, there is much to be said for contracting for technical production services with outside agencies as they are required.

What will the staff need to get on with the job?

No matter how you do it, the final critical task is to locate and obtain the required facilities, equipment, and materials. It may be that, in place of actual dollars, your benefactors or partners will prefer to contribute facilities, equipment, materials, and/or essential services. A word of caution is in order here: be as careful and as choosy as you dare in accepting contributions other than money--the assistance of studio personnel, for example. You may be acquiring more problems than assistance, as some colleges have learned.

What are the stages in the design process?

When the level and source of funding are known, staff identified, and facilities and materials lined up, it is time to review and refine the game plan and get started.

The Coast Community College model described by Purdy (1980) has become more or less standard. The instructional developer, who will serve as coordinator throughout the process, works with content specialists--an academic advisor or advisory committee--to develop an overall course description and course goals. Specific lesson topics are identified, the lesson sequence determined, and instructional objectives are written for each lesson. These objectives specify the exact learning behaviors to be demonstrated by the student. They will later be included in the study guide.

The full team then goes over the course lesson by lesson, deciding on the type of treatment to be used for each objective—text, text and video, or video only. The course team works from program content outlines to plan program treatment and decide on the most effective way to present the content of a given program; e.g., an in-studio demonstration, an interview with an expert, on-site filming, or adaptation of an existing film. Early on, too, a decision must be made as to whether to use an on-camera host, and, if so, an academic or professional actor. Budget, of course, will help dictate how much on-site filming can be done, how often animation can be used, how much can be spent to clear film protected by copyright.

Print materials to acompany the course must also be designed at this stage. The instructional designer and publication specialist determine the format of the study guide, and a sample chapter is prepared to accompany a pilot TV segment. This lesson, complete with test items, must be evaluated thoroughly by the advisory committee, administrators, outside funders, and students, so that necessary revisions can be made in both the print and video materials before the course goes into full production.

The instructional designer, as production coordinator, oversees the entire production process to ensure the integration of the various course components, sees to it that communication is maintained between members of the course team and that any necessary reports are prepared and circulated, and mediates any disagreements over content. Toward the end of the process, the publications staff and instructional designer start to produce a faculty manual.

What kinds of printed materials will we need?

As experience at Dallas, Coast, Miami-Dade, and elsewhere has shown beyond any doubt, a comprehensive, well-structured study guide is a key element in the mastery of course objectives by students. Consequently, much importance is placed on both the content and format of the guide, which should provide complete instructions, study assignments, drill, study aids, and advice. Self-testing and enrichment activities should also be included.

Other course components may include textbooks, readers, art prints, musical tapes, and other appropriate materials, depending on the course. Some of these materials may be commercially available, and some must be produced for the course. At Dallas, for example, readings for a literature course were included in the study guide when no satisfactory reader could be found; a business textbook which did not cover several key topics was supplemented with journal articles, reports, charts, and graphs in the study guide; a special art print book and audiotape were developed and produced for a humanities course; and a special lab manual with mail-in review sheets was designed for an earth science course. Composition students were given pre-addressed assignment packets with self-carbon paper so that both the students and their instructor could have copies of the essays and teacher comments. However, it must be remembered that permission needs to be be obtained to reproduce copyrighted materials.

What about old-fashioned face-to-face contact between student and instructor? How is this provided for?

Every telecourse designer, it almost goes without saying, must allow for some form of live interaction between student and instructor, tutor, learning manager--whatever he or she may be called--even though, as experience shows, successful telecourse students can learn on their own "at a distance" and, therefore, do not require all the opportunities for live contact possible in the conventional classroom. But TV students must have the chance to consult with instructors and coordinators on the telephone or to meet with them in scheduled seminars and conferences. All effective telecourse operations provide such opportunities, some even setting up expensive telephone "hot lines" on a 24-hour basis and maintaining special centers for TV students.

Telecourse students also appreciate the reassurance and feedback provided by correspondence assignments which are read and promptly returned with an instructor's comments and advice. Self-scoring quizzes also supply instant checks on progress. Miami-Dade has developed an ingenious computer-based, individualized system called RSVP which checks the student's progress and prescribes corrective procedures in cases of deficiency. In the early 1960's, Chicago TV College officials learned that the drop-out rate in TV courses could be dramatically reduced if a course study guide contained self-scoring progress tests for every unit of a course.

The trick, as successful designers have learned, is to plan the telecourse so that the student never feels that he must be on his own. An institution employing telecourses in its program of instruction has the obligation of seeing to it that help is always there whenever it is needed.

Institutions utilizing telecourses regularly are also learning that an important job still remains to be done in faculty development. Faculty supplying supportive

instruction for telecourses must learn that their role is different from that of the classroom teacher and lecturer--and just as important in its own way.

What about telecourses like the Ascent of Man and Classic Theatre? How do they differ from courses designed specifically as telecourses?

Miami-Dade, Coast Community College, and the University of California, San Diego, were among the first to spot the potential for direct college-level instruction in such superb general-audience series as Ascent of Man and Civilisation, two of the most effective of the so-called "wrap-around" telecourses. Over 100,000 students have enrolled in the Ascent of Man for credit. The famous programs featuring the late Jacob Bronowski and Sir Kenneth Clark are called wrap-arounds because the video programs, produced as cultural features for general audiences, were later converted into credit courses by the addition of study guides and other study materials. Fortunately for the course designers, both Civilisation and Ascent of Man were accompanied by trade edition books--later made available in textbook editions--that contained the TV scripts illustrated by many of the visuals used in the programs.

A number of wrap-arounds have appeared. Although broadcast in this country by PBS stations, most of them were produced in England by the BBC. Besides the two already mentioned, perhaps the most successful have been America and The Long Search, a series in comparative religion. The Shakespeare Plays, now appearing at the rate of six a year from the BBC and broadcast by PBS, have understandably excited strong interest in colleges and universities. Study guides to the plays are prepared as they appear, with Coast, the Bay Area Consortium, and University of California, San Diego, as leaders in this effort. A shortened paperback edition of the Riverside text, the study materials, and the half-dozen plays presented during the year add up to a rewarding and unusual three-credit hour (or fewer, depending on the participating institution) course for off-campus students. The plays, of course, also serve as invaluable supplements for classroom courses in Shakespeare or the drama.

Videocassette recordings of most wrap-around series can be purchased by colleges and universities: until recently, Time-Life controlled distribution rights for BBC productions in this country. Broadcast rights--including broadcast on cable--are restricted, although some colleges offer the course on an independent study basis, with students watching cassettes in study centers.

How effective are wrap-arounds?

Leslie Purdy of Coastline Community College and Darrell Icenogle of the University of California Extension, with support from the National Endowment for the Humanities, did an in-depth investigation of the national experience with Classic Theatre: The Humanities in Drama, a wrap-around course for which staff from the authors' institutions prepared study materials. Faculty, administrators, and students in 24 two-year and four-year colleges around the country were surveyed. (In this respect, it should be noted that wrap-around courses, the programs of which are aired by PBS stations during prime viewing hours all over the nation, are, in effect, "national" telecourses.) Responses were generally favorable, with complaints, however, about exam questions showing signs of hasty

composition, etc. The most serious complaints centered around adapting the PBS schedule to academic calendars:

> Current practices and procedures of the Public Television Service do not typically permit the kind of lead-time for course production, distribution, and local implementation that . . . institutions desire. (Purdy and Icenogle, 1976, p. 117)

Wrap-around courses would be more effective and easier to adapt to local institutional use if the study materials could be planned and prepared at the same time as the video programs and trade books. As things now stand, study materials must be readied in great haste between the completion of production and the initial airing of the program on PBS. This can be an impossibly short time, especially since the course materials must be distributed to participating colleges throughout the country before the air date. If TV producers were willing to involve those who prepare the ancillary study materials at the earliest stage, faculty best qualified to prepare materials could be located and recruited, the materials could be designed and thought out more carefully, and they could be more effectively integrated into the series as a whole. Too often, the study materials seem an afterthought.

Then too, as Purdy and Icenogle recommend, Public Broadcasting officials should be encouraged to plan their schedules in consultation with academic administrators. Thus, airing the six Shakespeare plays over an entire calendar year, delaying the announcement of broadcast dates until the last moment and then changing dates after the schedule has been announced--all these pose insurmountable problems for the academic administrator who must prepare announcements of course offerings well in advance and promote special offerings like telecourses in the local community.

One reason, as we shall see later, that consortia of telecourse users are multiplying, is the need of educators to speak to broadcasters with one voice. The Instructional Telecommunications Consortium (ITC) at the American Association of Community and Junior Colleges is an instance of this development on a national scale. The current 18 ITC members, local consortia themselves or multi-campus colleges, represent more than 180 individual colleges in all sections of the country. With such a broad constituency, the ITC is obviously in a stronger position to encourage public broadcasting and federal officials to explore ways of involving the higher education community in programming decisions and the shaping of telecommunications policy. Consortia springing up in regions and stations throughout the nation are now approaching broadcasters and speaking for sizeable constitutencies.

Signs point to increasing cooperation between public broadcasters and post-secondary educators. As already mentioned, the Corporation for Public Broadcasting commissioned a study of relations between colleges and universities and public broadcast stations several years ago, and maintains an active and productive unit on adult learning projects. PBS through its satellite-based PTV-3 educational/instructional service, scheduled to begin in the fall of 1981 on over 100 stations and in several hundred participating colleges, will be working closely with higher education in reaching new students. The PBS/Annenberg Schools of Communications Project will undoubtedly prompt many new alliances between public telecommunications and higher education.

What about the "consortia" mentioned so frequently already? What are they? What do they do?

A consortium is simply a group of institutions cooperating to achieve a common goal or goals. Some are formally chartered as non-profit organizations and are governed by by-laws and constitutions; others operate in a casual, ad hoc way, the members joining forces to achieve a limited goal and then disbanding or becoming inactive once the goal has been achieved. Understandably, in this period of dwindling resources, consortial arrangements which involve sharing existing resources or pooling them look more attractive.

Consortia are nothing new in higher education. They are now becoming common in the world of instructional telecommunications, especially among the two-year colleges, which until now have been the most extensive users of media-based materials. Some, like the AACJC's ITC, a co-sponsor of this study, rest on a national base. The National Association of Land Grant Colleges and Universities, in fact, is about to organize a group that will be the four-year college counterpart of the ITC, a sign of the lively interest in telecommunications uses among upper-division institutions.

Other consortia are based in regions, states, or local areas. The Eastern Educational Consortium (EEC) is a prime example of a flourishing regional TV consortium, with two-year and four-year college members in five major states. The Southern California Consortium for Community College Television, the Bay Area Consortium, the Southern Illinois Collegiate Common Market (all ITC members) are examples of regional groupings within states. A noteworthy statewide consortium of two-year colleges has been active in Florida for several years, acquiring telecourses to be presented on public TV stations throughout the state.

The University of Mid-America (UMA) and the recently established National University Consortium (NUC) represent special kinds of consortia. The former, headquarted in Lincoln, Nebraska, is made up of the Midewest's Big Eight universities, offering its courses through the extension divisions. With funding from the National Institute of Education and other organizations, UMA has produced courses--TV and radio--designed to extend university-level education to the adult population. UMA now plans to expand into an American Open University that will enable students to earn degrees in certain areas by combining credits earned elsewhere with credit earned by examination, through life experience, by media-based study, correspondence, etc.

NUC is a group of some ten colleges and universities that offer British Open University courses adapted for U.S. collegiate use by the University of Maryland. Video programs are broadcast by PBS stations agreeing to participate. Supported during its beginning stages by the Carnegie Foundation, the consortium is headquartered at the University of Maryland.

What are the advantages in consortia?

For one thing, consortia of telecourse users can acquire existing video and other materials at much more advantageous rates. Since the costs are spread among members, single institutions that otherwise could not afford to lease materials can do so. This is certainly one of the most attractive features of membership for most institutions.

Second, colleges interested in producing telecourses are finding that costs can quickly become prohibitive. For example, no one of the five or six institutions that pooled financial and faculty resources to produce Understanding Human Behavior at Station KOCE-TV, Coast Community College's production facility, could have afforded or produced such a sound and attractive course on its own.

Production consortia, too, can be effective in attracting money and support from outside sources, federal agencies, private foundations, and commercial publishers. A group of five or six community college districts, each with large enrollments, is some assurance of significant target audience "impact," in that extensive use and adoption are guaranteed in advance, a matter of great concern to funding agencies. In addition, a commercial publisher willing to put risk capital into a telecourse is guaranteed access to a market of some magnitude for print and film materials.

We have already noted that the consortium is also a useful way of forming a "constituency" for college telecommunications users, producers, and distributors. Members of the ITC, for example, are unanimous in agreeing that the consortium has made telecommunications policy makers at the national level aware that higher education has a stake in policy determination and resource allocation. As already indicated, the ITC represents not only the interests of a single institution but the common interests of over 150 colleges nationwide. Two-year and four-year colleges are learning that in union there is strength. They have learned--to take another example--that when dealing with municipalities and governing bodies about to award franchises to cable operators, the legitimate interests of educators in reserving channels are best served by forming a united front.

Are there disadvantages in consortial arrangements?

Of course, not all consortia are effective. For one thing, higher education consortia are seen by some faculty and administrators as running counter to the jealously preserved autonomy of U.S. higher education institutions. Unless goals are carefully defined and limited and thus appear non-threatening to institutional autonomy, consortia can degenerate into little more than excuses for occasional off-campus luncheon meetings.

The goals of telecourse producers and users are usually limited and specific, and, as already indicated, are ones that no single institution can achieve on its own. Thus far, no complaints have been heard about telecourse collaboration endangering local self-determination. Already cited studies conducted of the Ascent of Man and Classic Theatre, national telecourses, disclosed no significant faculty resentments or fears that their curriculum-shaping prerogatives had been infringed (see Hoachlander, 1977; Purdy and Icenogle, 1976).

Only if large regional consortia begin to coalesce so as to form national curriculum planning and production groups can we anticipate charges of attempts to develop and foist upon U.S. higher education a national curriculum, or national curricula, something alien to our tradition.

The disadvantage just mentioned, of course, poses broadly philosophic questions and is highly speculative. It is not, and may never be, a real issue. The one real, though occasional, disadvantage of consortial arrangements at the moment revolves around the problems of producing a collective product that is both

distinctive and genuinely representative of the views of the collaborators. There is always the danger that consortial co-productions stunt individual creativity and settle at the the level of the lowest common denominator.

Consortium coordinators must be strong leaders and masters of compromise. When they are, consortial products are outstanding and worth all the effort. If they are not, the resulting product can have a mediocrity that hardly justifies the effort.

Disadvantages or not, the trend toward consortial arrangements is inevitable, particularly in telecommunications, where spiraling costs and scarce talent make cooperation imperative.

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